

CLAIMS

What is claimed is:

1. A method for forming a vulcanizable composition of matter, the method comprising:

- 5 providing a polymer cement or latex comprising at least one rubber;
 adding at least one processing aid to the cement or latex to form a modified rubber cement or latex;
 isolating the rubber and at least one processing aid to form a premix;
 and
10 mixing the premix with carbon black.

2. The method of claim 1, where said step of adding at least one processing aid to the cement or latex includes forming a cocktail, which includes the processing aid and a solvent, and adding the cocktail to the cement or latex.

- 15 3. The method of claim 2, where said step of forming the cocktail includes heating the processing aid and solvent to a temperature of from about 30 to about 140°C.

- 20 4. The method of claim 3, where said step of forming the cocktail includes combining the processing aid and solvent with an oil.

- 25 5. The method of claim 4, where the cocktail includes from about 10 to about 50 parts by weight processing aid, from about 100 to about 35 parts by weight solvent, and from about 0 to about 65 parts by weight oil.

- 30 6. The method of claim 1, where said step of adding at least one processing aid to the cement or latex includes forming a cocktail, which includes the processing aid and an oil, and adding the cocktail to the cement or latex.

7. The method of claim 1, where said step of isolating includes drying the rubber and processing agent.

8. The method of claim 1, where said step of mixing occurs within a mixer having a net mixing chamber volume of at least about 75 L operated at a fill factor of at least about 50.

5 9. The method of claim 1, where the at least one processing aid is a polar organic compound, a resin, a low molecular weight polymer, or a mixture thereof.

10 10. The method of claim 9, where the polar organic compound is a high-HLB surfactant, an ester, a ketone, an aldehyde, an ether, an amide, an amine, a carboxylic acid, a fatty acid, a sulfonic acid, an organic sulfate, a metal carboxylate, a metal sulfonate, or a mixture thereof.

15 11. The method of claim 10, where the fatty acid salt includes a mixture of zinc fatty acid salts.

12. The method of claim 1, where the rubber is a functionalized rubber.

20 13. The method of claim 12, where the functionalized rubber is prepared by anionically polymerizing conjugated dienes, alone or in combination with vinyl aromatic monomers, and where the polymerization is initiated with a cyclic amine initiator or a tin-lithio initiator.

25 14. The method of claim 12, where the functionalized rubber is prepared by terminating a polymerization with a coupling or functional terminating agent.

15. The method of claim 12, where the functionalized rubber includes both head and tail functionalization.

30 16. The method of claim 1, further comprising the step of shaping the vulcanizable composition of matter into a green tire component, and further comprising the step of curing the tire component.

17. The method of claim 1, where said step of adding at least one processing aid includes adding from about 0.1 to about 15 parts by weight processing aid per 100 parts by weight rubber.

5 18. The method of claim 1, where said step of adding at least one processing aid includes adding from about 0.5 to about 12 parts by weight processing aid per 100 parts by weight rubber.

19. A tire tread prepared by a method comprising:

10 preparing a vulcanizable composition of matter by providing a rubber cement or latex comprising at least one rubber, adding at least one processing aid to the rubber cement or latex to form a modified rubber cement or latex, isolating the rubber and at least one processing aid to form a premix, mixing the premix with carbon black;

15 shaping the vulcanizable composition of matter into a green tire tread, and

curing the tire tread.

20 20. A method for increasing the dispersion of carbon black within a carbon-black filled tire component, the method comprising:

providing a rubber cement or latex comprising at least one rubber;

adding at least one processing aid to the rubber cement or latex to form a modified rubber cement or latex;

25 isolating the rubber and at least one processing aid from the solvent to form a premix; and

mixing the premix with carbon black.